

COUNTRY ANALYSIS BRIEFS

Qatar

Last Updated: December 2009

Background

Qatar holds the world's third largest natural gas reserves and is the single largest supplier of liquefied natural gas.

Qatar is also a member of OPEC and exports considerable amounts of oil.

Qatar is a member of the Organization of the Oil Exporting Countries (OPEC) and is a significant oil producer. The Qatari government has devoted more resources recently to the development of natural gas, particularly for export as liquefied natural gas (LNG). Qatar is the world's largest supplier of LNG.



Total Energy Consumption in Qatar, by Type (2007)

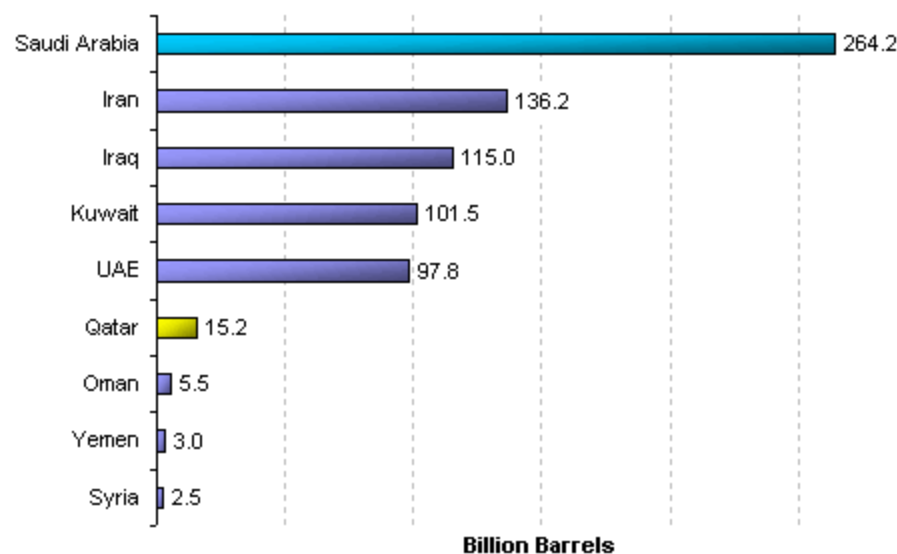
Source: EIA International Energy Annual 2007

Oil

Overview

Qatar remains an important supplier for world oil markets.

According to Oil & Gas Journal, as of January 1, 2009, Qatar has 15.2 billion barrels of proven oil reserves. Qatar was the fifteenth largest crude oil exporter in the world in 2008, and of the 12 Organization for Petroleum Exporting Countries (OPEC) members, ranked eleventh in crude oil exports in 2008. The onshore Dukhan field, located along the west coast of the peninsula, is the country's largest producing oil field.

Selected Middle East Proven Oil Reserves, January 1, 2009

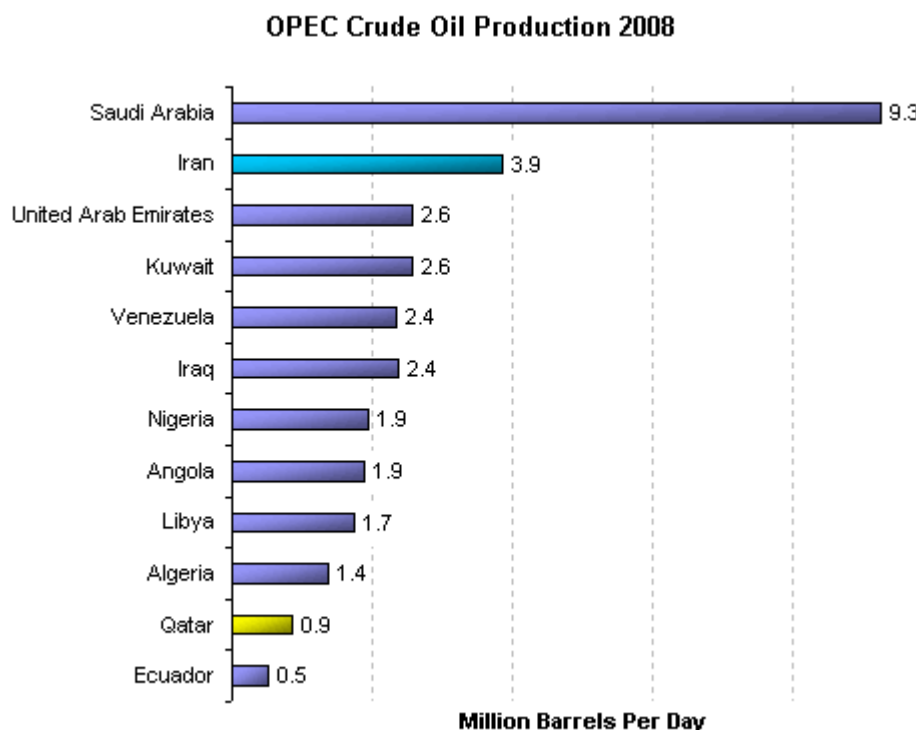
Source: Oil & Gas Journal, Jan. 1, 2009

Sector Organization

State owned [Qatar Petroleum](#) (QP) controls all aspects of Qatar's upstream oil sector. QP often enlists foreign company involvement through production sharing contracts, and typically takes a majority equity share. Through QP's wholly owned subsidiary, National Oil Distribution Company, QP controls Qatar's downstream oil sector.

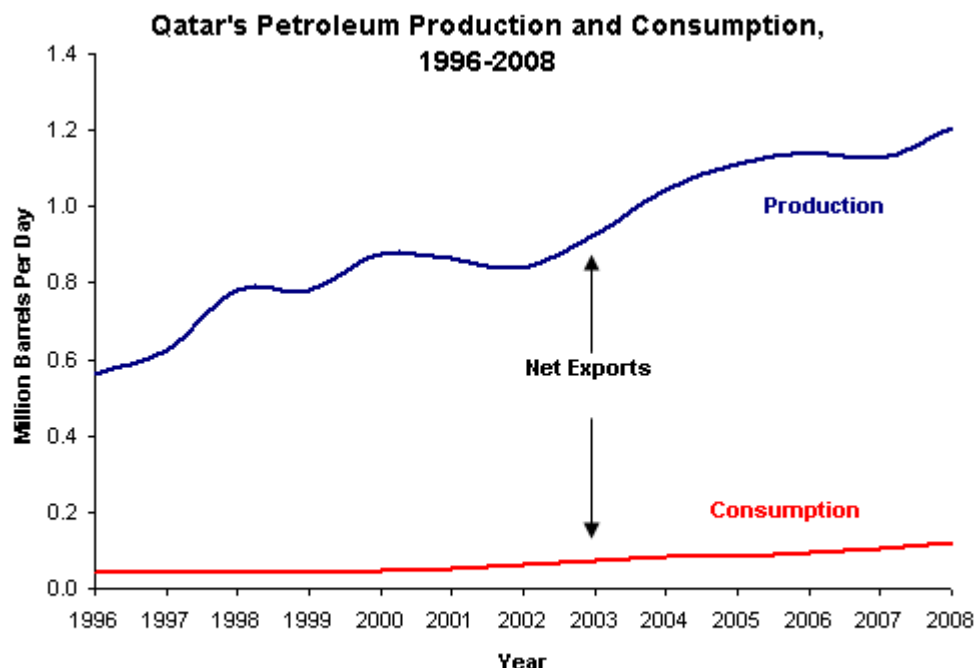
Production

Qatar is the eleventh largest producer in OPEC. In 2008, Qatar produced approximately 1.2 million barrels per day (bbl/d) of total liquids, roughly 850,000 bbl/d of crude and 350,000 bbl/d of non-crude liquids. Year-to-date 2009 production averages indicate Qatar produced an estimated 1.2 million barrels per day (bbl/d) of total liquids (830,000 bbl/d of crude and 370,000 bbl/d of non-crude). The country's crude oil production capacity from 2008 to 2009 increased from 960,000 bbl/d to an estimated 1 million bbl/d. As an OPEC member, Qatar is allocated a specific production target by the Organization. In mid-2009, Qatar's implied crude production target was estimated to be 730,000 bbl/d. At current production levels, Qatar carries about 270,000 bbl/d of spare crude capacity.



Source: EIA Short Term Energy Outlook; November 2009

Though Qatar's petroleum production has grown steadily since 2002, Qatar's fields are maturing. To offset anticipated declines, enhanced oil recovery (EOR) techniques are being considered for several fields including Al-Shaheen (approximate production capacity [apc] 340,000 bbl/d), Dukhan (apc 335,000 bbl/d), and Bul Hanine and Maydan Marjam (apc 100,000 bbl/d). In particular, Maersk, which has a production sharing agreement with QP, plans to raise Al-Shaheen's production capacity to over 500,000 bbl/d using EOR techniques by 2011. Plateau maintenance programs are currently being discussed for South Dome and Al-Khaleej.



Source: EIA World Petroleum Consumption & Short-Term Energy Outlook (November 2009)

Condensate and Natural Gas Liquids

Condensate and natural gas liquids (NGLs) do not fall under Qatar's OPEC quota obligations, and have risen as a proportion of Qatar's total petroleum production over time. EIA estimates that condensate and NGL production has grown by an average of nearly 8 percent since 2007, reaching approximately 370,000 bbl/d in 2009.

Consumption

In 2008, Qatar consumed approximately 129,000 bbl/d of petroleum. This is nearly 15 percent more than 2007 consumption levels. FACTS Global Energy forecasts Qatar's oil product consumption to grow by nearly 11 percent annually from 2010 through 2015. Qatar's increased petroleum consumption rates are due to its growing economy, and through 2015, to its use of LPG as feedstock for petrochemical plants.

Pipelines

QP operates Qatar's oil pipeline network, which delivers supplies from oil fields to Qatar's export terminals and refineries. QP operates an expansive offshore pipeline network bringing crude oil from offshore oil fields to Halul Island where oil can be processed for export. Onshore, most oil is sent to Umm Said for refining or export.

Exports

Qatar has three primary export terminals: Umm Said, Halul Island, and Ras Laffan. Ras Laffan is used mainly to export liquefied natural gas (see Natural Gas Section for more information). The majority of Qatar's oil exports are sent to Asian economies, Japan being the single largest importer.

Refining

According to Oil and Gas Journal, as of January 1, 2009, Qatar has 200,000 bbl/d of refining capacity. By the end of 2009, Qatar is expected to have nearly 350,000 bbl/d of refining capacity. In late September 2009, the 146,000 bbl/d Ras Laffan condensate refinery began operation and is expected to become fully operational by the end of 2009. The Ras Laffan plant is operated by Qatargas (a QP subsidiary; see Natural Gas section for more information), and is controlled by a consortium of investors: QP (51 percent), ExxonMobil (10 percent), Total (10 percent), Idemitsu (10 percent), Mitsui (4.5 percent) and Marubeni (4.5 percent). The refinery will produce nearly

60,000 bbl/d of naphtha, 50,000 bbl/d of jet fuel, 25,000 bbl/d of gasoil, and 10,000 bbl/d of LPG. Plans call for a doubling of Ras Laffan's refining capacity by 2014. The status of the new, 250,000 bbl/d al-Shaheen refinery is under review; preliminary engineering and design work was completed in early 2009.

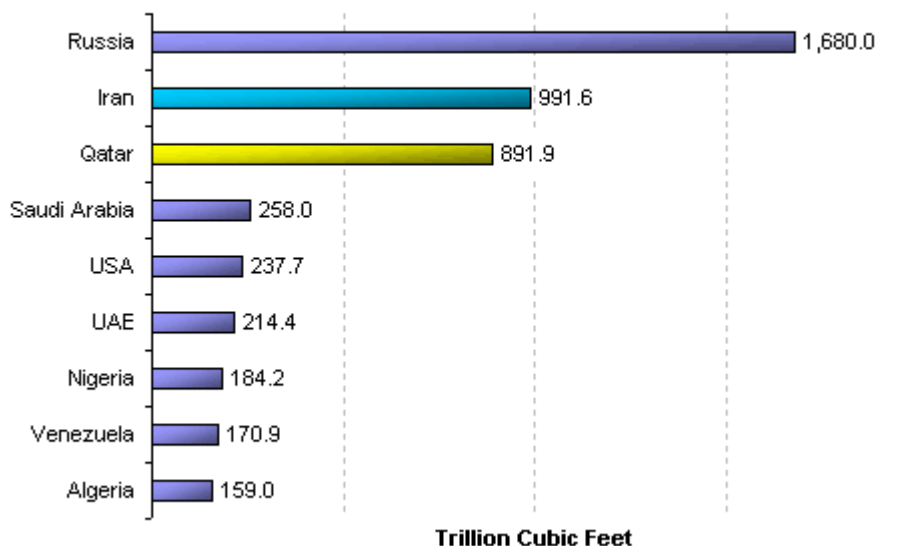
Natural Gas

Qatar has the largest non-associated natural gas field in the world and is the world's largest liquefied natural gas exporter.

Overview

According to *Oil & Gas Journal*, Qatar's proven natural gas reserves stood at approximately 890 trillion cubic feet (Tcf) as of January 1, 2009. Qatar holds almost 15 percent of total world natural gas reserves and is the third-largest in the world behind [Russia](#) and [Iran](#). The majority of Qatar's natural gas is located in the massive offshore North Field, the world's largest non-associated natural gas field. The North Field is a geologic extension of Iran's South Pars field, which holds an additional 450 Tcf of recoverable natural gas reserves.

World Natural Gas Reserves by Country, January 1, 2009



Source: Oil & Gas Journal, Jan. 1, 2009

Sector Organization

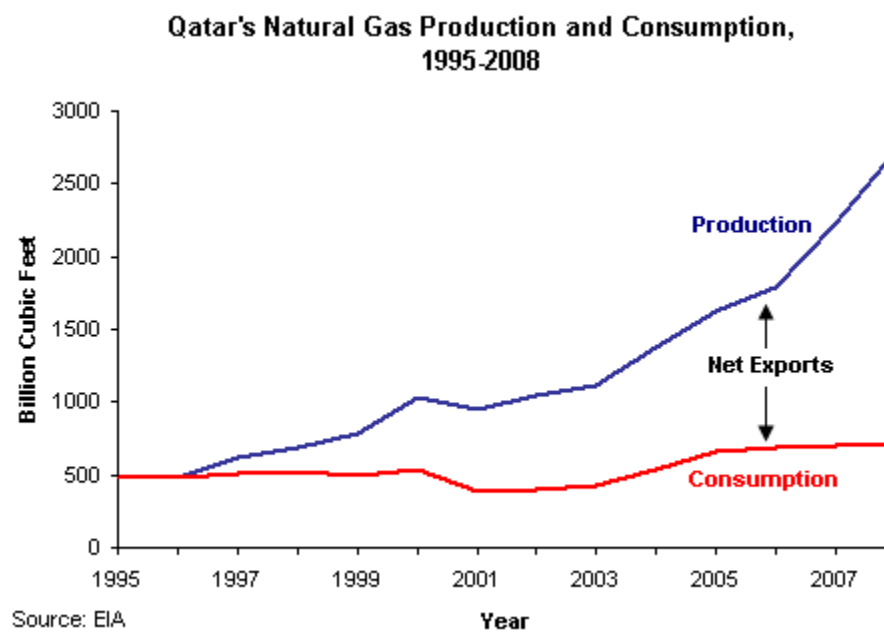
As in the oil sector, Qatar Petroleum (QP) plays a dominant role in Qatar's natural gas sector, leading upstream production and playing an important role in downstream projects. Qatar's focus on natural gas development tends to be large-scale projects linked to LNG exports or the promotion of downstream industries that utilize natural gas as feedstock. Therefore, foreign company involvement has favored international oil companies with the technology and experience in integrated mega-projects, including ExxonMobil, Shell, and Total.

Qatar's LNG sector is dominated by Qatar LNG Company (Qatargas) and Ras Laffan LNG Company (RasGas). RasGas is 70 percent-owned by QP and 30 percent-owned by ExxonMobil, while the Qatargas consortium includes QP, Total, ExxonMobil, Mitsui, Marubeni, ConocoPhillips, and Shell. The LNG companies handle all upstream to downstream natural gas transportation themselves, while the Qatar Gas Transport Company (known as "Nakilat", which means "carriers" in Arabic) is responsible for shipping Qatari LNG.

Production and Consumption

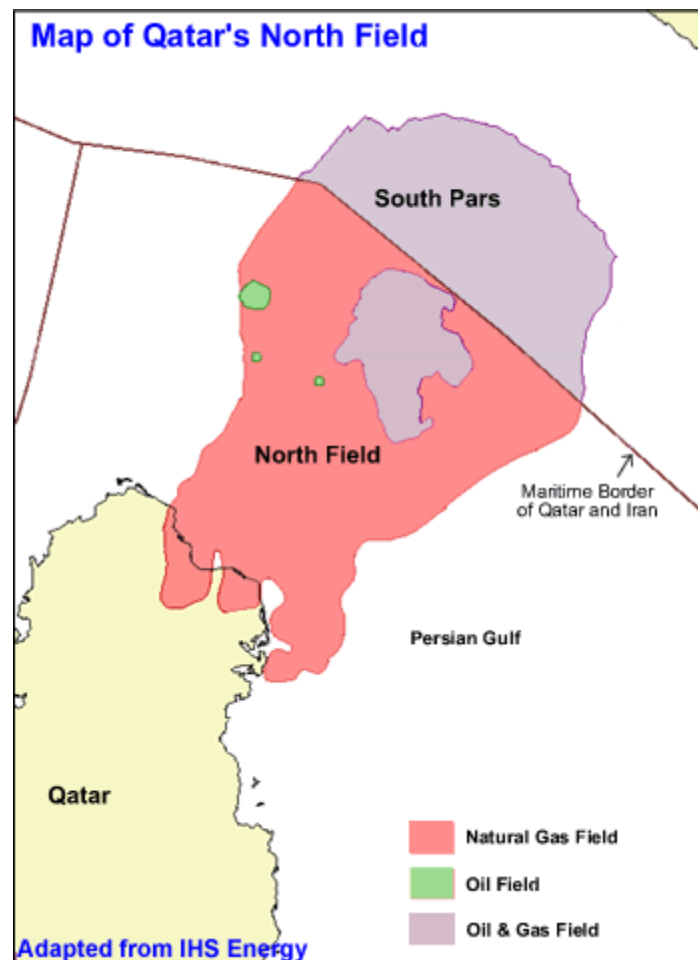
Qatar continues to expand natural gas production. In 2008, Qatar produced approximately 2.7 Tcf of natural gas, or more than five times the amount produced in 1995. The expected increase in natural gas production will fuel the growing natural gas requirements of domestic industry, LNG export commitments, piped natural gas exports through the Dolphin pipeline, and several large-scale gas-to-liquids (GTL) projects.

Qatar's natural gas consumption in 2008 was approximately 715 billion cubic feet (Bcf).



North Field

The North Field is key to Qatar's natural gas development and production plans. In 2005, Qatari government officials placed a moratorium on additional natural gas development projects at the North Field to allow time to study field development optimization. The moratorium did not affect projects approved or underway before the moratorium, allowing Qatar to continue its growth in natural gas production. According to *FACTS Global Energy*, by 2012 the North Field is expected to produce 20 Bcf/d.



Exports

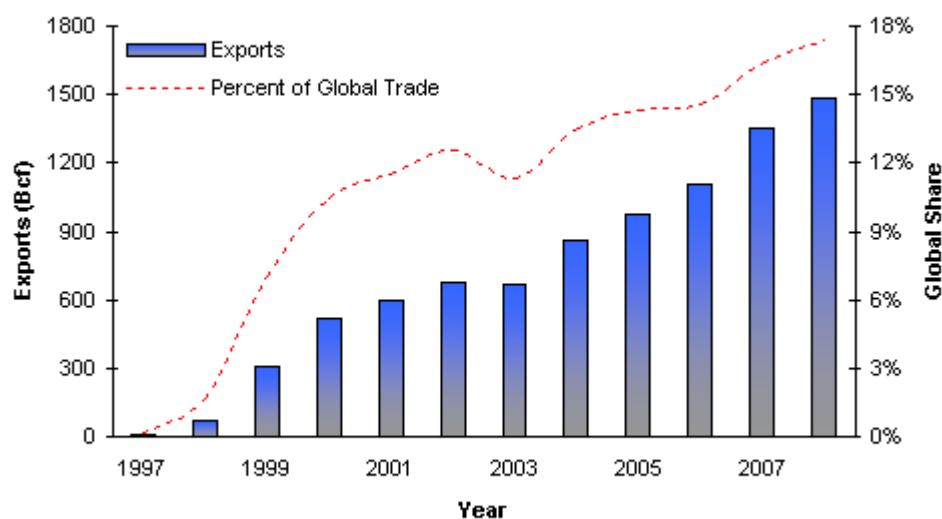
During 2008, Qatar exported over 2 Tcf of natural gas, about 70 percent of which was liquefied natural gas (LNG). Qatar currently exports about 2 Bcf/d of natural gas to the UAE through the Dolphin pipeline.

Liquefied Natural Gas

Qatar is the world's leading LNG exporter.

Qatar is the world's leading LNG exporter. In 2008, Qatar exported nearly 1.4 Tcf of LNG. Of this amount, approximately 425 Bcf (8.7 million tons [MMt]) went to South Korea, 400 Bcf (8.2 MMt) to Japan, 300 Bcf (6.2 MMt) to India, 165 Bcf (3.4 MMt) to Spain, and 3 Bcf (less than 0.1 MMt) to the United States.

Qatar's LNG Exports, 1997-2008



Source: 1997-2007 EIA; 2008 FACTS Global Energy

Qatar has two major LNG operations, RasGas and Qatargas, with 11 trains online and a total LNG liquefaction capacity of 2.7 Tcf/y (53 MMt/y). Three of these trains were added in 2009. Qatargas 2, trains 4 and 5 were brought online in April and September (respectively). Combined, the trains will produce approximately 780 Bcf/y of LNG (15.6 MMt/y), 44 million barrels per year (bbl/y) of condensate (6 MMt/y), and 12.5 million bbl/y of propane and butane (1.7 MMt/y). Rasgas 3, Train 6 was brought online in late October 2009 and has an LNG liquefaction capacity of 380 Bcf/y (7.8 million MMt/y).

RasGas 3, Train 7 is expected to come online in 2010. Qatargas 3, Train 6, with a liquefaction capacity of 390 Bcf/y of LNG (7.8 MMt/y) is planned to begin operations in 2010. Qatargas 4, Train 7, with the same liquefaction capacity, is planned to begin operations in 2011.

Qatar's LNG Infrastructure, November 2009

Unit	Liquefaction Capacity	Start-up	Primary Market(s)
RasGas Facilities			
Trains 1& 2	2 x 3.2 MMt (320 Bcf)	Aug. 1999	South Korea
Train 3	4.7 MMt (230 Bcf)	Feb. 2004	India
Train 4	4.7 MMt (230 Bcf)	Aug. 2005	Europe
Train 5	4.7 MMt (230 Bcf)	Mar. 2007	Europe & Asia
Train 6	7.8 MMt (380 Bcf)	Oct. 2009	China
Train 7	7.8 MMt (380 Bcf)	2010	China
QatarGas Facilities			
Trains 1-3	3 x 3.2 MMt (480 Bcf)	Dec. 1996	Japan & Spain
Train 4	7.8 MMt (380 Bcf)	Apr. 2009	UK
Train 5	7.8 MMt (380 Bcf)	Sep. 2009	UK
Train 6	7.8 MMt (380 Bcf)	2010	US
Train 7	7.8 MMt (380 Bcf)	2011	China & North America
Source: RasGas, Qatargas, media reports			

Dolphin Project

Qatar is the supplier for the [Dolphin Project](#), which connects the natural gas networks of Qatar, the [United Arab Emirates](#), and [Oman](#) with the first cross-border natural gas pipeline in the Gulf Arab region. The pipeline currently exports 2 Bcf/d from Qatar, and has a capacity of 3.2 Bcf/d.

Increased supplies from Qatar are uncertain until the North Field moratorium issue is resolved.

Gas-to-Liquid

Gas-to-liquids (GTL) technology uses a refining process to turn natural gas into liquid fuels such as low-sulfur diesel and naphtha, among other products. In January 2009, industry sources reported the Oryx GTL plant (QP 51 percent, Sasol-Chevron GTL 49 percent) was fully operational, producing approximately 30,000 bbl/d of GTL. The Oryx project uses about 330 MMcf/d of natural gas feedstock from the Al Khaleej field. Depending on the resolution of the North Field moratorium, Oryx GTL may choose to expand production capacity of the plant in the future.

The Pearl GTL project (QP 51 percent, Shell 49 percent) is expected to use 1.6 Bcf/d of natural gas feedstock to produce 140,000 bbl/d of GTL products as well as 120,000 bbl/d of associated condensate and LPG. Currently, the plant is expected to start up at the end of 2010, followed by a ramping up of production in 2011. The Pearl project will be the first integrated GTL operation in the world, meaning it will have upstream natural gas production integrated with the onshore conversion plant.

Profile

Energy Overview

Proven Oil Reserves (January 1, 2009E)	15.2 billion barrels
Oil Production (2008)	1.2 million barrels per day, of which 850,000 barrels per day was crude oil.
Oil Consumption (2008)	129,000 barrels per day
Crude Oil Distillation Capacity (2008)	200,000 barrels per day
Proven Natural Gas Reserves (January 1, 2009E)	890 trillion cubic feet
Natural Gas Production (2008)	2.7 trillion cubic feet
Natural Gas Consumption (2008)	3.9 trillion cubic feet
Recoverable Coal Reserves (2008)	None
Coal Production (2008)	None
Coal Consumption (2008)	None
Electricity Installed Capacity (2007)	3 gigawatts
Electricity Production (2007)	15 billion kilowatt hours
Electricity Consumption (2007)	13.7 billion kilowatt hours
Total Energy Consumption (2007)	933 trillion Btus*, of which Natural Gas (78%) & Oil (22%)
Total Per Capita Energy Consumption (2007)	1,114.7 million Btus
Energy Intensity (2007)	24,679.69 Btu per \$2000-PPP**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2007)	57.51 million metric tons, of which Natural Gas (77.3%; including flaring) & Oil (22.6%)
Per-Capita, Energy-Related Carbon Dioxide Emissions (2007)	70.57 metric tons
Carbon Dioxide Intensity (2007)	1.5 Metric tons per thousand \$2000-PPP**

Oil and Gas Industry

Organization	Qatar Petroleum - exploration, production, refining and distribution; Qatar Liquefied Gas Company (Qatargas) and Ras Laffan LNG Company (Rasgas) - production and marketing of liquefied natural gas (LNG)
Major Oil/Gas Ports	Umm Said, Ras Laffan
Foreign Company Involvement	Anadarko Petroleum, BP, Chevron, ExxonMobil, Maersk Oil, Marubeni, Mitsui, Occidental Petroleum, Shell, Total
Major Oil Fields	Dukhan, Id al-Shargi North Dome, Bul Hanine, Maydan Mahzam, al-Shaheen, al-Rayyan, and al-Khaleej
Major Natural Gas Fields	North Field
Major Refineries (capacity, bbl/d)	Umm Said (200,000 bbl/d capacity) Ras Laffan (146,000 bbl/d capacity)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

**GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA – Qatar Country Energy Profile](#)

U.S. Government

[CIA World Factbook - Qatar](#)

[U.S. State Department Consular Information Sheet - Qatar](#)

[U.S. State Department Background Notes on Qatar](#)

[U.S. Embassy in Doha, Qatar](#)

Foreign Government Agencies

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Electricity

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[Qatar Electricity & Water Company \(QEWC\)](#)

[Qatar General Electricity & Water Corporation \(Kahramaa\)](#)

Sources

APS Review of Oil Market Trends

Cedigaz

Central Intelligence Agency

Dow Jones News Wire service

Economist Intelligence Unit ViewsWire

Energy Information Administration

FACTS Global Energy

Global Insight Middle East Economic Outlook

Global Trade Atlas

Gulf News; Hart's Middle East Oil and Gas

International Market Insight Reports

International Oil Daily

Middle East Economic Survey

Oil and Gas Journal

Petroleum Economist
Platt's Oilgram
Petroleum Intelligence Weekly
Qatar Petroleum
World Gas Intelligence
World Refining and News Today

Contact Info

cabs@eia.doe.gov
(202)586-8800
cabs@eia.doe.gov